Bridge Condition Report

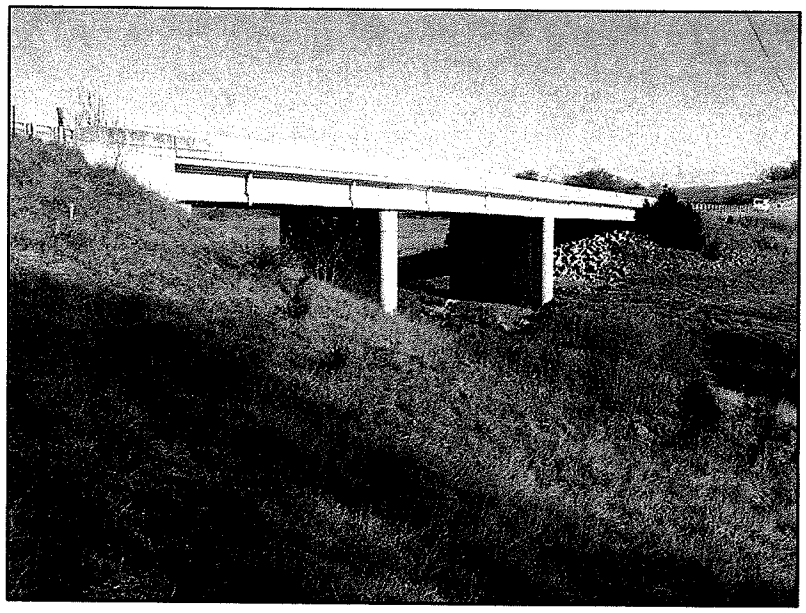
DISTRICT: 2

ROUTE: FAP Route 308 (IL 84)

SECTION: 103C-1BR

COUNTY: Jo Daviess

STRUCTURE NUMBER: 043-0037 (EXISTING)



LOCATION: 2.3 miles south of US Route 20

PREPARED BY: Dan Link

DATE PREPARED: February 2007

PROPOSED LETTING DATE: November 2008

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I. Geographical & Administrative Data:

Structure Number:	043-0037
County:	Jo Daviess
Route Carried:	FAP Route 308 (Illinois 84)
Feature Crossed:	Irish Hollow Creek
Section:	103C-1BR
Station:	129+37
Roadway Classification:	Other Principal Arterial
Design/Posted Speed:	55 MPH
ADT (current/design):	2650/3000
ADTT (current/design):	292/330
DHV:	300
Inventory Rating HS:	25.0
Operating Rating HS:	42.8
Sufficiency Rating:	87.5

Construction / Reconstruction / Repair History:

Construction:

Structure number 043-0037 was built in 1984 as contract number 35770, FA 18 Section 103C-1BR.

Repairs:

District forces have been called on several times to patch spalled concrete on the deck surface.

II. Physical Description of Structure:

Structure number 043-0037 is a three span pre-cast, pre-stressed concrete I-beam bridge built on solid reinforced concrete piers and open reinforced concrete stub abutments. All of the substructure units are founded on battered HP 12 x 53 steel piles. The 48" PPC I-Beams are fixed over the north pier and expansion over the abutments and the south pier.

The back-to-back of abutment structure length is 208' -11". Span lengths from north to south are 79' -6", 73' -7", and 50' -0". Two 12' lanes are provided with 4' shoulders. Out-to-out deck width is 35' -2". The structure is built on a 22° 30' left ahead skew.

During the original construction a change order was approved to utilize 2 ½" pre-cast, pre-stressed deck planks to form the deck in lieu of the conventional deck. Total deck thickness remained unchanged at 7 ½". 8' -0" wide deck planks were used.

2" neoprene expansion joints were specified in the plans over the abutments but modular joints were used instead.

The structure is on tangent horizontally. Vertical grade on the structure is -2.75 %.

There are no utilities present on the structure.

III. Field Inspection & Physical Evaluation:

Superstructure:

Deck: The deck is in poor condition. The deck survey reveals that approximately 25% of the deck surface is delaminated or spalled. The underside of the deck planks display only small isolated areas of water and road run-off infiltration. The concrete parapet is in good condition with the exception of the northeast approach rail, of which the top 1 inch has spalled off for its entire length (Attachment E, page 18).

Joints: Several sections of the modular expansion joints have broken and been replaced with silicone joint sealer (Attachment E, page 10).

Beams: The PPC I-beams are in good condition. There is some water staining to several beam-ends due to joint leakage. Beam 3 at the north abutment has a small delaminated area in the web at the extreme end of the beam (Attachment E, page 21). A similar condition exists for beams 1, 3, 4 and 5 at the south abutment (Attachment E, page 23, 24, 25). There is also delamination and spalling to the concrete diaphragms at both piers (Attachment E, page 19, 20).

Bearings: The elastomeric bearings are in good condition. There is moderate to heavy corrosion to the steel bearing plates at the abutments.

Substructure:

Abutments: All substructure concrete was found to be in good condition. There is a minor void under the east half of the south abutment cap (Attachment E, page 16).

Piers: The piers are in excellent condition.

Slope Protection: The riprap slope walls are in good condition.

Inspection History (NBIS Ratings):

Year	Deck	Super	Sub
2006	5	8	7
2005	6	8	8
2003	7	8	8
1999	8	8	8

Geometric/Hydraulic Data:

This structure requires a special feature inspection of the pier pile caps due to a flow restriction and channel velocity condition. District records indicate very little if any change to the stream conditions since original construction. The scour critical evaluation has been given a rating of '5' by the district scour committee, indicating the scour is within the limits of the piling.

IV. Potential Scope of Work Determination & Analysis:

Due to the extent of the deck surface deterioration (25%) and the existing deck plank configuration, deck repair is not being considered.

Rehabilitation-Deck Replacement: This work should consist of removal of the existing deck and deck planks and replacement with a conventionally formed deck. Also to be included is repair of the northeast approach railing and filling of the void under the south abutment cap.

The good condition of the PPC I-beams and the substructure along with the acceptable bridge geometry precludes considering any further alternatives.

VI. Discussion and Recommended Scope of Work:

Replacing the existing deck with a conventional deck will eliminate the recurring maintenance of continually patching the existing deck. The PPC I-beams and the substructure are in very good physical condition and the existing bridge width of 32' -0" meets current design criteria for bridges to remain in place. Therefore, the recommended scope of work is a deck replacement contract that will include repairing the existing approach parapet, and filling the void under the south abutment.

Road closure with detour is the preliminary recommendation pending the results of the traffic management analysis.

ATTACHMENTS:

Attachment A. Location map

Attachment B. IDOT Master Structure Report

Attachment C. Bridge Inspection Report

Attachment D. PONTIS Inspection Report

Attachment E. Superstructure Survey

Attachment F. Structure Photos

Attachment G. Abbreviated Existing Plans